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ABSTRACT

A study explored the feasibility of using the New Youth Cohort of the National Longitudinal Surveys of Labor Market Behavior (NLS Youth) database to examine the effects of vocational education on handicapped individuals. During the study, researchers examined the labor market experiences of 73 handicapped youths who manifested a self-reported limiting health condition, showed four or more credits labeled Educable Mentally Retarded on their high school transcripts, and participated in individualized education programs (IEPs). While such a small sample prevented any firm conclusion on the earnings of handicapped persons, the evidence that is available suggests that handicapped vocational graduates had a higher rate of labor force participation, a higher employment rate, and a lower unemployment rate than did their handicapped nonvocational peers. Based on the study, the NLS Youth database appears to be less than ideal for studying the benefits of vocational education for handicapped persons. In order to study this issue at a national level, a new survey or additional questions on future NLS Youth surveys are needed to investigate handicapped individuals' labor market experiences. Appended to the report are an annotated bibliography and an orientation plan to use the NLS database to examine the labor market experiences of handicapped youth. (MN)

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# LABOR MARKET EXPERIENCES

# OF

# HANDICAPPED YOUTH

Donna M. Mertens
Patricia Seitz

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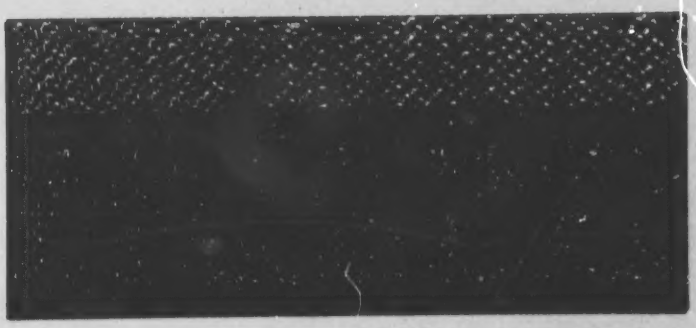

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# FOREWORD

Handicapped individuals earn less money and have more difficulty getting jobs than their nonhandicapped peers. Vocational education is one potential way to improve the labor market experiences of handicapped youth. The present study explored the feasibility of using the New Youth Cohort of the National Longitudinal Surveys of Labor Force Behavior (NLS Youth) data base to examine the effects of vocational education for handicapped people.

The NLS Youth surveys were developed by the Center for Human Resource Research (CHRR) at The Ohio State University, with support from the U.S. Departments of Labor and Defense. Michael Borus, Director of CHRR, and two of his staff members, Susan Carpenter and Michael Motto, served as consultants to this project, offering valuable advice concerning the analysis of the data base.

Definition of high school curriculum was accomplished with greater precision than was previously possible due to the availability of high school transcripts for the NLS Youth respondents. With funding for the project by the U.S. Department of Education, Office of Vocational and Adult Education, the National Center for Research in Vocational Education contracted with the National Opinion Research Center (NORC) to collect the transcripts. The present study was funded by the U.S. Department of Education, Office of Special Education and Rehabilitative Services. In this study, the National Center again contracted with NORC--this time to collect the Individualized Education Programs (IEPs) for potentially handicapped respondents. Jean Atkinson, Senior Survey Officer at NORC, spearheaded the IEP collection effort.

This study was conducted in the Evaluation and Policy Division of the National Center for Research in Vocational Education, The Ohio State University. Jill Russell assisted in the early stages of the literature review, and Marta Fisch provided computer programming support in the analysis stage. Cathy King-Fitch analyzed the IEPs to verify the respondents' handicapping conditions and to assess the overall quality of the IEPs. Project Director Donna M. Mertens, Patricia Seitz, Morgan Lewis, and Sterling Cox staffed the project from its initial conceptualization to the completion of the final report. Expert clerical support was provided by Deborah Anthony.

The quality of the report was enhanced by the comments of several reviewers. National Center staff members who reviewed the initial draft included N. L. McCaslin, Morgan Lewis, Fred Williams, and Pat Winkfield. In addition, Alan Phelps, Associate

Professor at the University of Illinois, and Lloyd Tindall, Project Associate at the Vocational Studies Center, University of Wisconsin-Madison, provided insightful reviews. Final edit of the document was provided by Connie Faddis and Janet Kiplinger of the National Center's editorial staff.

Robert E. Taylor
Executive Director
National Center for Research
in Vocational Education

# EXECUTIVE SUMMARY

For handicapped persons, special training can improve their potential to be productive members of the labor force; vocational education in high school represents one way of providing this training. Very little evidence exists concerning the labor market effects of vocational education for handicapped persons, particularly at the national level. The present study explored the feasibility of using the National Longitudinal Survey of Labor Force Behavior, Youth Cohort Survey (NLS Youth), supplemented by the respondent's high school transcripts, to examine this issue.

The NLS Youth respondents' handicapping conditions were verified by means of screening on three criteria and requesting Individualized Education Programs (IEPs) from the schools of the resulting pool of respondents. The three criteria included: a self-reported limiting health condition (other than pregnancy), four or more credits labeled Educable Mentally Retarded (EMR) on their high school transcript, or a score of 0 or 1 on the World of Work (WOW) test (a proxy measure of IQ). This screening process yielded a pool of 398 potentially handicapped persons; IEPs were obtained for 54 of these. The schools reported that 19 other individuals were eligible for an IEP, but that none of these IEPs were available. Thus, the verified handicapped sample consisted of 73 respondents.

The implementation date of P.L. 94-142, the low return rate of IEPs, combined with the survey date for the NLS Youth resulted in a very limited sample from which to infer the labor market effects of vocational education for handicapped youth. The evidence that is available suggests that handicapped vocational graduates had a higher rate of labor force participation, a higher employment rate, and a lower unemployment rate than their handicapped nonvocational peers. Insufficient data and a wide variability of responses prevent any firm conclusions concerning the effects of vocational education on the earnings of handicapped people. In addition, the small sample size prevented use of such statistical techniques as regression analysis to control the many extraneous variables that influence a person's earnings.

Implications of the study touch on the availability of national data to examine the labor market effects of vocational education for handicapped people, the federal leadership role, and areas in need of further research. The NLS Youth data base appears to be less than ideal for studying this issue. In order to study the labor market effects at a national level, a new survey or additional questions on future NLS Youth surveys are needed to identify handicapped individuals more accurately.

The federal leadership role in vocational education appears to have had a positive effect on the improvement of education for handicapped persons. Revisions to the excess cost and matching requirement provisions in P.L. 94-142 could result in even greater advancements. Additional research and increased in-service training are needed to help bridge the gap between special needs populations and vocational educators.

# CHAPTER 1

## INTRODUCTION

Vocational education is one widely available intervention that appears to have potential for improving the employment opportunities of handicapped persons. Yet, very little information is available on the effectiveness of this intervention (Beuke et al. 1980; Grasso and Shea 1979; Mertens et al. 1980). Evidence from two studies that were conducted at the local level suggest a positive relationship between work study or vocational training and the labor market experiences of handicapped persons (Dinger et al. 1973; Hasazi and Preskill 1982). The results of these studies are of interest; however, a need exists to examine this issue at the national level.

Federal legislation over the past decade has addressed the need to enhance labor market experiences for handicapped individuals. Specifically, Section 504 of the Rehabilitation Act of 1973 forbade recipients of federal funds from denying employment to persons with handicapping conditions based solely on their particular handicap. Title II of the Education Amendments of 1976 guaranteed access to vocational education programs for special needs youth and reinforced that mandate with expenditure requirements for each recipient of federal vocational education funds. P.L. 94-142 stressed the rights of handicapped children to a free, appropriate public education, including vocational education, and specified a management vehicle to prescribe that education, which is the Individualized Education Program (IEP) (Cobb, Phelps, and Martin 1982). The IEP is an individualized learning plan that is developed for each handicapped child and that establishes a basis for measuring the student's performance.

Despite legislative mandates, there is still a tremendous need to develop and expand appropriate career development and vocational opportunities for handicapped individuals at the secondary and postsecondary levels (Halloran and Razeghi 1981). A recent survey of over 10,500 schools nationwide revealed that only 2.6 percent of the secondary-age students receiving vocational education were identified as handicapped (U.S. Office of Education 1980). Using a different definition of handicapped, Razeghi and Halloran (1978) reported that 1.7 percent of vocational students were handicapped. The generally accepted incidence figure for school age populations is approximately 12 percent (Halloran 1978); however, this figure cannot be used as a direct basis for comparison because it includes elementary and secondary students.

For handicapped students who were placed in vocational education, a 1980 Office of Civil Rights study revealed a marked overrepresentation in vocational programs considered to be

lower-level programs, such as custodial services (42 percent), quantity foods (7 percent), and nonskilled study programs (5 percent) (Vreeburg 1980).

According to Braddock (1976), the vast majority of handicapped individuals can attain a high degree of economic self-sufficiency when given appropriate education and training, while only 5 to 15 percent have more restrictive earnings potentials. In a review of literature concerning the cost effectiveness of special education, Smith (1981) found that studies overwhelmingly indicate that the earlier intervention takes place, the greater the cost effectiveness in terms of human productivity and community savings.

Yet, the consequences of not equipping handicapped individuals with appropriate labor market skills are exceptionally high. Bowe (1980) cited a study (Berkowitz and Rubin 1977) that indicates that the costs of maintaining handicapped people in dependency roles have increased dramatically over the past ten years. The cost of such dependency in 1970 exceeded $114 billion (Rossmiller, Hale, and Frohreich 1971) and is expected to reach $200 billion in the 1980s (Bowe 1980).

## Purpose of the Present Study

In light of the dearth of information concerning the relationship between vocational education and the labor market experiences of handicapped persons, the National Center for Research in Vocational Education, sponsored by the U.S. Office of Special Education and Rehabilitative Services, undertook a study of this issue. The study used data from the National Longitudinal Survey of Labor Force Behavior, Youth Cohort Survey (NLS Youth), an ongoing effort of the Center for Human Resource Research (CHRR) at Ohio State University, with support from the U.S. Departments of Labor and Defense.

The NLS Youth survey is a national probability sample of youth who were between the ages of fourteen and twenty-one in 1978. They were interviewed in early 1979, 1980, 1981, and 1982; additional interviews are planned for 1983 and 1984. The purposes of this study were three-fold:

1. To determine the feasibility of using the NLS Youth survey to examine the labor market effects of vocational education for handicapped persons

2. To report the results of the labor market effects of vocational education for handicapped persons

3. To provide a mechanism for use of the longitudinal data base by the research community to conduct youth employment research for handicapped persons

One of the major problems encountered in research on the effects of vocational education is the process used to classify students' curricula (i.e., vocational, college preparatory, or general) (Grasso and Shea 1979; Mertens et al. 1980). Typical methods used to classify students are to ask the student (self-identification) or to ask a school administrator. Campbell, Orth, and Seitz (1981) reported the results of classification using two methods: self-identification and transcript analysis. They found a disagreement rate of approximately 30 percent between the methods.

High school transcript data were collected by the National Center for Research in Vocational Education for the NLS Youth sample. In the present study, the record of courses on the transcript was used as a basis for classifying students by curriculum. This increases the accuracy of classifying students and strengthens the assumption that the effects being examined are associated with participation in vocational education.

The importance of the results of the present study is supported by the current state of information reported in the literature concerning the effects of vocational education for the handicapped. Franchak and Spirer (1979) recognized the need for valid and reliable evaluation data because of the growth in educational programs and appropriations for special needs populations. Federal and state legislators, educators, parents and other concerned groups demand evidence that the special populations are being effectively served. The question for vocational education, of course, will focus on the extent to which the handicapped individuals have been successful in obtaining employment.

## Organization of the Report

Chapter 2 of this report addresses the process of identifying handicapped individuals in the NLS Youth sample. The mechanism of identification is discussed, along with the characteristics of the sample, the quality of the Individualized Education Program (IEP), and the extent of vocational education involvement in the handicapped students' programs. Chapter 3 compares the results of the labor market effects for handicapped and nonhandicapped persons, specifically concerning labor force participation and earnings. The final chapter presents a summary of the findings and a discussion of conclusions, recommendations,

and areas for further research. The appendix contains an orientation plan for the NLS Youth data base, with special emphasis on the IEP data, for use by the research community in the conduct of youth employment studies.

## CHAPTER II

## IDENTIFICATION OF HANDICAPPED PERSONS IN THE NLS YOUTH SAMPLE

The NLS Youth survey is a national probability sample of 12,686 men and women who were between the ages of fourteen and twenty-one in 1978. One of the purposes of the present study was to determine the feasibility of using the NLS Youth survey to examine the labor market effects of vocational education for handicapped persons. A first step in this process was to verify the classification of handicapped persons in this data base. The means of verification was to obtain an Individualized Education Program (IEP) for individuals who, based on responses to the questionnaire and other criteria, might potentially be handicapped. The sample used for analysis in this study was restricted by the implementation date for the P.L. 94-142 legislation. Because P.L. 94-142 specified that IEPs were to be developed by September 1978 for handicapped persons ages three to eighteen, the sample was restricted to persons who reported leaving school (i.e., dropping out or graduating) after 1978 or persons who were still in school at the time of the 1979 or 1980 interviews. This restriction resulted in a potential sample size of 6,736 (see table 1). The sample was further restricted to exclude subjects whose school identification number was missing, thereby reducing the potential pool of subjects to 5,085.

The next step in the process was to identify those individuals in the restricted sample who might be handicapped. Three criteria were used to identify these individuals:

1. If the respondents indicated that they were prevented from working for pay or limited in the type of work they could do because of a health condition, the case was included in the sample of potentially handicapped. The responses to this item were classified according to the World Health Organization's International Classification of Diseases, and therefore, included a wide range of conditions. Respondents who reported an accident as a limiting health condition were included if the accident occurred more than six months prior to the interview date. Pregnancy was the only health condition excluded.

2. If the respondents' transcripts showed that they had been enrolled in more than

TABLE 1

ATTRITION IN THE SAMPLE FOR

VERIFICATION OF HANDICAPPING CONDITION

| | Frequency | Percent |
|---|---|---|
| Original sample size | 12,686 | 100.0 |
| Left school after 1978 or were in school in 1979 or 1980 | 6,736 | 53.1 |
| Had school ID number | 5,085 | 40.0 |
| Met potential handicapping criteria | 398 | 3.1 |
| IEPs available | 54 | 0.4 |

four Educable Mentally Retarded (EMR) classes, they were included in the sample. The criteria of four EMR classes was established because coursework done in a learning Resource Center had been identified with the same code as Special Education and EMR classes. Several pilot runs were completed without the four course criteria, and there was not an appreciable difference in the number of cases identified.

3. Originally, the IQ scores obtained from the schools were to be used as another method for screening the sample. However, problems in the data indicated that the IQ scores were potentially unreliable. The alternative was to select respondents whose scores on the Knowledge of the World of Work (WOW) test were at the second percentile or lower. WOW is an occupational information test that proxies for ability. Griliches (1976) reported that WOW " should reflect both the quantity and quality of schooling, intelligence, and motivation. . . it seems to perform rather similarly (and parallel) to the IQ variable "(p.875).

The number of individuals who met these criteria was 398. The frequency by criteria are presented in table 2.

The IEPs were requested from the schools for these 398 individuals under a subcontract with the National Opinion Research Center. IEPs were returned for 54 (14 percent) of the 398 respondents.* Table 3 presents the schools' responses to the request for IEPs.

Several noteworthy observations can be derived from table 3. First, IEPs are available for only a small percentage of the possibly handicapped individuals. Second, schools reported having no IEPs for nineteen individuals (26 percent) for whom there was strong indication that they were eligible. This raises a question about the implementation of P.L. 94-142.

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*IEPs were actually received for 55 individuals. However, the IEP for one of these individuals indicated that he was gifted. Since his health condition (respiratory ailment) was unrelated to his prescribed educational program, he was not included in the handicapped sample.

TABLE 2

PARTICIPANTS BY HANDICAPPING SCREENING CRITERIA

| Criteria | Potential Sample f (%) | Total Verified Handicapped Sample f (%) | IEP Sample f (%) |
|---|---|---|---|
| Health condition only | 253 (59.0) | 36 (49.3) | 26 (48.2) |
| EMR only | 30 (7.5) | 20 (27.4) | 16 (30.0) |
| WOW only | 123 (30.9) | 14 (19.2) | 11 (20.3) |
| More than one criteria | 10 (2.5) | 3 (4.1) | 1 (1.8) |
| Total | 398 (100.0) | 73 (100.0) | 54 (100.0) |

TABLE 3

SCHOOL'S RESPONSE WITH REGARD TO IEPs

| | Frequency | Percent |
|---|---|---|
| IEP provided | 54 | 13.6 |
| No IEP provided; school indicated student was eligible | 19 | 5.0 |
| No IEP provided; school indicated student was not eligible | 324 | 81.6 |
| Total | 397* | 100.2 |

*One IEP was returned for a gifted student. This individual was dropped from the handicapped sample.

By this stage in its implementation, IEPs should have been available. It is not clear why they were not.

A third observation concerns the correspondence between the selection criteria and information contained in the IEP. The handicapping condition coded on the IEP and the use of the EMR or WOW criteria appear to correspond to each other fairly well. Ten of the eleven (91 percent) WOW representatives were coded as either EMR or Learning Disabled (LD). This is reasonable in light of the high correlation between the WOW test and IQ (Griliches 1976). Similarly, thirteen of the sixteen (81 percent) cases identified by the EMR criteria were categorized as either EMR or LD by their IEPs. Thus, the EMR and WOW criteria appear to be valid indicators of EMR or LD conditions for this sample.

Correspondence between the health criteria and IEP classification was not as strongly evidenced. In the self-report of limiting health conditions, one person reported a hearing impairment, three reported orthopedic handicaps, and the remaining twenty-four reported other health conditions. Of those who reported orthopedic handicaps, only one respondent's self-reported condition corresponded to the IEP code. This lack of correspondence could be due to the fact that over 60 percent of the health criteria respondents were categorized as EMR or LD from their IEPs. These are two categories that respondents might be unlikely to report about themselves as limiting the amount or type of work they could do.

The results of matching the self-reported health condition with the IEP code emphasizes the importance of validating information found in a national survey such as the NLS Youth. Clearly, the self-reported health conditions are not influential enough to affect the specification of direct educational interventions as specified in the IEPs. The conditions of EMR or LD appear to be more important than the health conditions, in terms of instigating direct educational interventions as specified in the IEPs.

## Characteristics of the Sample

The total sample for this study consisted of 6,736 individuals who left school after 1978 or were still in school at the time of the 1979 or 1980 interviews. Of this sample, IEPs were available to verify the handicapping condition of 54 (0.8 percent) respondents (the IEP group). An additional 19 respondents were indicated as eligible for an IEP, but one could not be obtained. These respondents, combined with the IEP sample, represent the individuals who can confidently be classified as handicapped (the total handicapped group); they represent 1.1 percent of the total sample. This incidence rate is far below

the generally accepted incidence rate of 12 percent nationally (Halloran 1978). However, this incidence figure is not based solely on high school aged youth, and therefore, it is not directly comparable.

The most prevalent type of handicapping condition in the IEP group was EMR (56 percent), followed by LD (17 percent) (table 4). Of the multiply handicapped persons, three of the subjects had an EMR or LD classification, bringing the total percentage of EMR and LD representatives in the sample to 79 percent. This is similar to the 85 percent figure reported by Cobb, Phelps, and Martin (1982) in their study of a large Midwestern city school district. For an additional 11 percent of the IEPs, no handicapping condition was specifically mentioned and one could not be determined from the information given.

A high percentage of the handicapped sample was male (60 percent), whereas the nonhandicapped group was 51 percent male (table 5). The percentage of handicapped minorities (44 percent) corresponded roughly to the percentage in the nonhandicapped sample (45 percent). The high percentage of males corresponds to findings reported by Cobb et al. (1982); however, none of their patterns by race and handicapping condition were replicated in the NLS Youth data.

The handicapped population was overrepresented in the North Central region of the country (43 percent versus 24 percent for the nonhandicapped) (table 6). Consequently, in all other areas of the country there was an underrepresentation of handicapped persons as compared to the nonhandicapped population.

A higher percentage of the handicapped group tended to be enrolled in lower grades than the nonhandicapped sample (table 7). This finding may be related to the recent implementation date of P.L. 94-142, as well as the reliance on the IEP to identify the handicapped persons in this sample. In addition, it may reflect a tendency on the part of schools to "hold back" handicapped students.

## Quality of the Individualized Education Programs

P.L. 94-142 states that an IEP should contain the following elements:

- A statement of the present level of educational performance
- A statement of annual goals, including short-term instructional objectives

TABLE 4

HANDICAPPING CONDITION (IEP SAMPLE) BY RACE AND SEX

| | Male | | | Female | | | |
|---|---|---|---|---|---|---|---|
| | Hispanic f (%) | Black f (%) | White f (%) | Hispanic f (%) | Black f (%) | White f (%) | Total f (%) |
| EMR | 3 (100) | 7 (58) | 7 (41) | 2 (67) | 4 (67) | 7 (54) | 30 (55.6) |
| Orthopedic | - | - | 2 (12) | - | - | 1 (8) | 3 (5.6) |
| LD | - | 3 (25) | 3 (18) | - | 1 (17) | 2 (15) | 9 (16.7) |
| Other | - | - | 1 (6) | - | - | 1 (8) | 2 (3.7) |
| Not Discernable | - | 1 (8) | 2 (12) | - | 1 (17) | 2 (15) | 6 (11.1) |
| EMR/Speech | - | - | 1 (6) | - | - | - | 1 (1.9) |
| EMR/Ortho | - | - | 1 (6) | - | - | - | 1 (1.9) |
| Speech/Hear | - | 1 (8) | - | - | - | - | 1 (1.9) |
| Ortho/Vis/LD | - | - | - | 1 (33) | - | - | 1 (1.9) |
| Total | 3 | 12 | 17 | 3 | 6 | 13 | 54 |
| Percent of Total | 5.6 | 22.2 | 31.5 | 5.6 | 11.1 | 24.1 | 100 |

Key: EMR--Educable Mentally Retarded; Ortho--Orthopedically Handicapped; LD--Learning Disabled; Hear--Hearing Impaired; Vis--Visually Impaired.

TABLE 5

SEX-RACE DISTRIBUTION BY HANDICAPPED STATUS

| | Total Handicapped f (%) | Nonhandicapped f (%) |
|---|---|---|
| Hispanic male | 4 (5.5) | 572 (8.6) |
| Black male | 17 (23.3) | 939 (14.1) |
| White male | 23 (31.5) | 1,886 (28.3) |
| Hispanic female | 3 (4.1) | 561 (8.4) |
| Black female | 8 (11.0) | 901 (13.5) |
| White female | 18 (24.7) | 1,804 (27.1) |
| Total male | 44 (60.0) | 3,397 (51.0) |
| Total female | 29 (40.0) | 3,266 (49.0) |
| Grand total | 73 (100.0) | 6,663 (100.0) |

TABLE 6

GEOGRAPHIC RESIDENCE BY HANDICAPPED STATUS

| | Total Handicapped f (%) | Nonhandicapped f (%) |
|---|---|---|
| Northeast | 8 (11.0) | 1,256 (18.9) |
| North Central | 31 (42.5) | 1,563 (23.5) |
| South | 23 (31.5) | 2,460 (36.9) |
| West | 10 (13.7) | 1,189 (17.8) |
| Missing | 1 (1.4) | 195 (2.9) |
| | 73 (100.0) | 6,663 (100.0) |

TABLE 7

GRADE ENROLLED IN SCHOOL IN 1980 BY HANDICAPPED STATUS

| | Total Handicapped f (%) | Nonhandicapped f (%) |
|---|---|---|
| 9 or less | 12 (16.4) | 463 (7.0) |
| 10 | 12 (16.4) | 1,286 (19.3) |
| 11 | 14 (19.2) | 1,222 (18.3) |
| 12 | 11 (15.1) | 1,172 (17.6) |
| More than 12 | 1 (1.4) | 453 (6.8) |
| N/A | 23 (31.5) | 2,067 (31.0) |
| Total | 73 (100) | 6,663 (100) |

- A statement of specific educational services to be provided and the extent to which the child will be able to participate in regular educational programs

- The projected date for initiation and anticipated duration of such services, and appropriate objective criteria and evaluation procedures and schedules for determining, at least on an annual basis, whether instructional objectives are being achieved

Recent research indicates a high degree of missing information on IEPs (Armstrong 1978; Pyecha 1980; Rogers and Macy 1980; Say, McCollum, and Brightman 1980; Schenck and Levy 1979). However, most of the IEPs in the present study contained the majority of the required information (table 8). Only 37 percent of the IEPs were missing at least one piece of information; this figure is much lower than the 68 percent reported in the Schenck and Levy (1979) study. However, Pyecha's (1980) research suggested that the quality of IEPs was improving between 1978 and 1980. Perhaps the improvement associated with this period between Schenck and Levy and the present study can account for the difference in findings.

## Extent of Vocational Education Involvement

The extent of vocational education involvement is examined from two perspectives: (1) the degree to which vocational education is found in the IEPs, and (2) the amount of participation in vocational education for the total handicapped and nonhandicapped groups.

The IEPs were examined to determine the extent to which vocational education was included in the handicapped students' programs. In over 80 percent of the IEPs, there was at least some reference to vocational education (table 9). However, much of the discussion concerned prevocational activities, work experience or vocational counseling. Vocational training in a specific program area was listed in twenty-three of the fifty-four IEPs (43 percent).

In their study of four comprehensive high schools, Cobb et al. (1982) reported that 34.5 percent of the students had at least one vocational component on their IEP. The rate was much higher for EMR students (59 percent) than for LD students (6 percent). Cobb et al. also noted that 80 percent of the vocational placements were in either separate vocational classrooms for handicapped students or employment (work-study) programs. Thus, the regular vocational classroom placements accounted for about 7 percent of the IEPs in their sample. This corresponds

TABLE 8

INFORMATION CONTAINED IN THE IEPs

| Characteristics | f (%) |
|---|---|
| Present level of educational performance indicated | |
| no | 6 (11.1) |
| yes, without standardized scores | 24 (44.4) |
| yes, with standardized scores | 24 (44.4) |
| Annual goals specified | |
| no | 3 (5.6) |
| yes | 51 (94.4) |
| Short-term objectives specified | |
| no | 5 (9.3) |
| yes | 49 (90.7) |
| Indicated specific educational services to be provided | |
| no | 5 (9.3) |
| yes | 49 (90.7) |
| Extent of participation in regular programs specified | |
| no | 9 (16.7) |
| yes | 45 (83.3) |
| Initiation date of IEP and duration of services indicated | |
| no | 8 (14.8) |
| yes | 46 (85.2) |
| Objective criteria and evaluation procedures and schedule present | |
| no | 11 (20.4) |
| yes | 43 (79.6) |

TABLE 9

EXTENT OF VOCATIONAL EDUCATION INVOLVEMENT BY HANDICAPPING CONDITION AS REPORTED IN THE IEP

| | EMR f (%) | Orthopedic f (%) | LD f (%) | Other f (%) | Multiple f (%) | N/A f (%) | Total f (%) |
|---|---|---|---|---|---|---|---|
| None | 3 (10.0) | 1 (33.3) | 2 (22.2) | 1 (50.0) | 1 (.25) | 3 (50.0) | 11 (20.4) |
| Prevocational | 8 (26.7) | - | 2 (22.2) | - | 1 (.25) | 1 (16.7) | 12 (22.2) |
| Home Economics | 5 (16.7) | - | 1 (11.1) | - | - | 1 (16.7) | 7 (13.0) |
| Trade & Industry | 6 (20.0) | - | 3 (33.3) | 1 (50.0) | 1 (.25) | 1 (16.7) | 12 (22.2) |
| Business & Office | - | 2 (66.7) | - | - | 1 (.25) | - | 3 (5.6) |
| Agriculture | 1 (3.3) | - | - | - | - | - | 1 (1.9) |
| Work Experience | 5 (16.7) | - | - | - | - | - | 5 (9.3) |
| Vocational Counseling | - | - | 1 (11.1) | - | - | - | 1 (1.9) |
| Other | 2 (6.7) | - | - | - | - | - | 2 (3.7) |
| Total | 30 | 3 | 9 | 2 | 4 | 6 | 54 |
| Percent of Total | 55.6 | 5.6 | 16.7 | 3.7 | 7.4 | 11.1 | 100.00 |

roughly to the 6 percent of the enrollment of handicapped persons in vocational programs in a study of forty school districts in Texas (Fair 1982).

Curriculum classification in the present study was based on transcript data, and such data were available for only twenty-one of the fifty-four individuals in the IEP sample (table 10). Using the criteria of three or more credits in vocational education, 9.3 percent of the IEP sample was classified as vocational. When self-report designation of curriculum was used to supplement missing transcript data, 18.6 percent of the IEP sample was classified as vocational. The fact that 43.0 percent of the IEPs specified a particular vocational area, while only 16.7 percent reported themselves as vocational students and 18.6 percent of the transcripts (supplemented by self-report) resulted in a vocational education classification, suggests several hypotheses.

First, the respondents were enrolled in the full range of grades in high school, and consequently the number of years available on the transcripts varies. This could influence curriculum classification in that some of the respondents had not yet had the opportunity to take sufficient vocational courses to attain three or more vocational credits or to identify themselves as vocational students. Second, many of the handicapped students may have perceived their vocational education programs as more incidental to, rather than as defining, their high school curriculum. Perhaps they viewed the skills taught in their vocational courses as contributing to their personal development rather than as occupational training.

The IEP data permit an examination of the extent of vocational education by handicapping condition (table 9). Although the sample sizes are small, it appears that EMR students in vocational education were likely to be enrolled in a home economics or trade and industry program. The vocationally enrolled LD students also tended to be in trade and industry programs. Orthopedically handicapped students tended to be enrolled in a business program. Because of the small sample size, other vocational programs were mentioned either sporadically or not at all in the IEPs.

For the total handicapped sample in the present study, thirteen of the seventy-three (17.8 percent) respondents identified their curriculum as vocational; this is higher than the nonhandicapped sample's 13.6 percent (table 11). Similar to the results for the IEP sample, the tendency for that enrollment to be in the trade and industry, and business programs was again evident by students' self-report (table 12) of vocational program area. About 46 percent of the handicapped sample reported being in a trade and industry program as opposed to 37 percent of the nonhandicapped sample. However, none of the handicapped

TABLE 10

IDENTIFICATION OF HIGH SCHOOL CURRICULUM

BASED ON TRANSCRIPT AND SELF-REPORT

| | IEP Sample f (%) | Total Handicapped f (%) | Nonhandicapped f (%) |
|---|---|---|---|
| No Voc | 10 (18.5) | 15 (20.5) | 979 (14.7) |
| Up to 3 | 6 (11.1) | 12 (16.4) | 1,996 (30.0) |
| 3+ credits | 5 (9.3) | 6 (8.2) | 905 (13.6) |
| S-R Voc | 5 (9.3) | 7 (9.6) | 266 (4.0) |
| S-R Gen | 13 (24.1) | 16 (21.9) | 1,347 (20.2) |
| S-R CP | - | 1 (1.4) | 606 (9.1) |
| Missing | 15 (27.8) | 16 (21.9) | 564 (8.5) |
| Total | 54 (100.0) | 73 (100.0) | 6,663 (100.0) |

Key: No Voc--no vocational education credits; Up to 3--up to 3 credits in vocational education; 3+ credits--3 or more credits in vocational education; S-R Voc--self-report of a vocational curriculum (no transcript available); S-R Gen--self-report of a general curriculum (no transcript available); S-R CP--self-report of a college preparatory curriculum (no transcript available).

TABLE 11

SELF-REPORT OF HIGH SCHOOL CURRICULUM BY HANDICAPPED STATUS

| | IEP Sample f (%) | Total Handicapped f (%) | Nonhandicapped f (%) |
|---|---|---|---|
| Vocational | 9 (16.7) | 12 (16.4) | 754 (11.3) |
| Commercial | 1 (1.9) | 1 (1.4) | 150 (2.3) |
| College Prep | 2 (3.7) | 8 (11.0) | 1,890 (28.4) |
| General | 27 (50.0) | 35 (47.9) | 3,207 (48.1) |
| Missing | 15 (27.9) | 17 (23.3) | 662 (9.9) |
| Total | 54 (100.0) | 73 (100.0) | 6,663 (100.0) |

TABLE 12

SELF-REPORT OF HIGH SCHOOL VOCATIONAL PROGRAM

BY HANDICAPPED STATUS

| | IEP Sample f (%) | Total Handicapped f (%) | Nonhandicapped f (%) |
|---|---|---|---|
| Agriculture | - | 1 (7.7) | 45 (5.1) |
| Business & Office | 2 (20.0 ) | 3 (23.1) | 297 (33.7) |
| Distributive Education | 1 (10.0) | 1 (7.7) | 99 (11.2) |
| Health | 2 (20.0) | 2 (15.4) | 43 (4.8) |
| Home Economics | - | - | 37 (4.2) |
| Trade & Industry | 5 (50.0) | 6 (46.2) | 322 (36.6) |
| Other | - | - | 39 (4.4) |
| Total | 10 (100.0) | 13 (100.1) | 881 (100.0) |

sample reported enrollment in a home economics program. This suggests the hypothesis that handicapped students view those programs as personal development tools rather than as occupational training.

Transcript data were available for 33 of the 73 total handicapped sample and 3,880 of the 6,663 nonhandicapped sample (table 10). If the completion of at least three vocational courses results in a classification as a vocational student, then 8.2 percent of the handicapped and 13.6 percent of the nonhandicapped samples would be so specified. If self-report designation is used when transcript data is missing, then the percentage rises to 17.8 percent and 17.6 percent respectively. Thus, the data tend to support the notion that handicapped and nonhandicapped students are equally represented as a proportion of their presence in the population.

The IEPs were also examined to determine the extent of vocational personnel's involvement in the IEP process. Although most of the IEPs listed the names of the persons who participated in the meeting at which the IEP was developed, the position of the individual was not always indicated. Therefore, for this sample of IEPs it was not possible to determine the desired information. Because of the importance of this issue for policy implications, the results of previously conducted research of relevance to the topic are reviewed here. Based on a study of fifteen Vermont area vocational centers, Albright and Preskill (1982) reported that 74 percent of the teachers reported that they then had or had previously had handicapped students, 70 percent reported having had no formal coursework or workshop training in educating special needs students, 56 percent reported involvement in the placement decision, and 61 percent reported involvement in the development of the IEP. However, most described their involvement as informal, and only 12 percent reported being a participant in the IEP process. This lack of training in special needs education and involvement in the IEP process is evinced by the results of numerous research studies (Albright and Hux 1980; Albright and Preskill 1981; Cobb et al. 1982; Fair 1980, 1982; Moorman 1980; Parrish 1979; Smith and Hippel 1980).

## CHAPTER III

## LABOR MARKET EFFECTS OF VOCATIONAL EDUCATION FOR HANDICAPPED PERSONS

The transition from school to work is not easy, particularly for the handicapped person. This chapter compares the labor market experiences of handicapped and nonhandicapped individuals along two dimensions--employment and earnings. The question of the effect of vocational education is examined on both of these dimensions, based on the responses of the total handicapped and nonhandicapped samples.

Due to the implementation date (1978) of the P.L. 94-142 legislation concerning IEPs, the number of individuals in this sample in the labor force is extremely limited. As described in the previous chapter, the sample was restricted to those who left school after 1978 or were still in school in 1979 or 1980. Because of the recency of the IEP requirement, having an IEP precludes having much (or any) labor force participation for the sample interviewed in 1979 or 1980. The following time line depicts the limited opportunity for labor force participation:

| IEP Required | Earliest School Leavers | 1979 Interviews | 1980 Interviews |
|---|---|---|---|
| 9/78 | 1/79 | 1-6/79 | 1-6/80 |

As of the 1980 interview, the maximum possible time an individual could have been in the labor force, and be in this sample, is about a year and a half. Thus, the results described herein should be viewed as those associated with initial labor market experiences after high school for a very limited sample. They are presented for heuristic purposes and no implication is intended that these results are representative of a larger population.

### Employment Experiences

The employment experiences were examined from the perspective of labor force participation and employment and unemployment. Initially, the researchers planned to examine training-related placement also. Unfortunately, insufficient sample size precluded such an analysis. Underemployment is another important area for research in the labor force experiences of handicapped persons (Buzzel and Martin 1978); however, the data presently available in the NLS Youth Surveys do not address this issue.

## Labor Force Participation

Because of the age of much of the NLS Youth sample, it is not surprising that many of the respondents reported that they were going to school (table 13). Nevertheless, individuals with three or more vocational credits were most likely to report participation in the labor force. For handicapped individuals, two of the six cases (33.3 percent) with three or more vocational credits reported that they were working in the labor force. If those who self-reported a vocational curriculum and had missing transcript data are added to the handicapped vocational group, then seven out of thirteen persons (54.0 percent) reported that they were in the labor force. Either way, this combined group has a higher rate of labor force participation than any of the other groups, no matter which curriculum category or handicapped status is observed. The second highest rate of labor force participation is for the nonhandicapped vocational group. These findings support previous research studies that vocational students are more likely to be active participants in the labor market than their general or college preparatory peers (Hertens et al. 1980).

## Employment-Unemployment

Employment and unemployment rates were calculated only for those in the labor force, i.e., those working, those with a job but not working, or those who were unemployed. Employment rate is defined as the percentage that results when the number of individuals working, or with a job but not working, is divided by the total number of people in the labor force. Unemployment rate is defined as the percentage that results when the number of persons unemployed is divided by the total number of people in the labor force.

Both of the handicapped respondents who had completed at least three vocational credits reported that they were employed (table 14). For the corresponding nonhandicapped sample, the employment rate was 82 percent. These figures are among the highest employment rates for any of the groups. Correspondingly, their unemployment rates (i.e., 0 percent for handicapped and 18 percent for nonhandicapped) are among the lowest. The very small size of the handicapped sample limits the generalization of these findings. Most research has reported much higher unemployment rates for handicapped persons. Bowe (1980) reported that 76 percent of all disabled women are unemployed; Buzzell and Martin (1978) reported a 39 percent unemployment rate for the handicapped; and Branch and Hodick (1976) reported a 64 percent unemployment rate for handicapped persons who were out of school for six months.

TABLE 13

LABOR FORCE STATUS IN 1980 BY CURRICULUM

TOTAL HANDICAPPED

| | No Voc f.(%) | Up to 3 f.(%) | 3+ Credits f.(%) | 5+R Voc f.(%) | 5+R Academic f.(%) | 5+R GP f.(%) | Total f.(%) |
|---|---|---|---|---|---|---|---|
| Working | 5 (33.3) | 3 (27.3) | 1 (16.7) | 3 (42.9) | 3 (18.8) | - | 15 (26.8) |
| With job, not working | - | - | 1 (16.7) | - | - | - | 1 (1.8) |
| Unemployed | 4 (26.7) | 4 (36.4) | - | 2 (28.6) | 5 (31.3) | - | 15 (26.8) |
| Unable to work | - | - | - | - | - | - | - |
| Keeping house | - | - | - | - | - | - | - |
| Going to school | 5 (33.3) | 2 (18.2) | 2 (33.3) | 1 (14.3) | 8 (50.0) | 1 (100.0) | 19 (33.9) |
| Active forces | - | - | - | - | - | - | - |
| Other | 1 (6.7) | 2 (18.2) | 2 (33.3) | 1 (14.3) | - | - | 6 (10.7) |
| Total | 15 | 11 | 6 | 7 | 16 | 1 | 56* |
| % of Total | 26.8 | 19.6 | 10.7 | 12.5 | 28.6 | 1.8 | 100.0 |

NONHANDICAPPED

| | No Voc f.(%) | Up to 3 f.(%) | 3+ Credits f.(%) | 5+R Voc f.(%) | 5+R Academic f.(%) | 5+R GP f.(%) | Total f.(%) |
|---|---|---|---|---|---|---|---|
| Working | 446 (45.6) | 976 (49.0) | 501 (55.4) | 89 (33.5) | 358 (26.6) | 209 (33.8) | 2,578 (43.3) |
| With job, not working | 7 (.7) | 39 (2.0) | 12 (1.3) | 7 (2.6) | 14 (1.0) | 15 (2.5) | 94 (1.5) |
| Unemployed | 179 (18.3) | 313 (15.7) | 111 (12.3) | 49 (18.4) | 249 (18.5) | 78 (12.9) | 979 (16.1) |
| Unable to work | 2 (.2) | 4 (.2) | 1 (.1) | 1 (.4) | 1 (.1) | 1 (.2) | 10 (.2) |
| Keeping house | 19 (1.9) | 49 (2.5) | 20 (2.2) | 2 (.8) | 29 (2.2) | 8 (1.3) | 127 (2.1) |
| Going to school | 250 (25.5) | 488 (24.7) | 208 (23.0) | 76 (28.6) | 501 (37.2) | 223 (36.8) | 1,751 (28.7) |
| Active forces | 13 (1.3) | 37 (1.9) | 15 (1.7) | 20 (7.5) | 79 (5.9) | 47 (7.8) | 211 (3.5) |
| Other | 41 (4.2) | 43 (2.2) | 16 (1.8) | 13 (4.9) | 65 (4.8) | 15 (2.5) | 193 (3.2) |
| Not re-interviewed | 22 (2.2) | 39 (2.0) | 21 (2.3) | 9 (3.4) | 91 (3.8) | 14 (2.3) | 196 (3.6) |
| Total | 979 | 1,996 | 905 | 266 | 1,347 | 606 | 6,099** |
| % of Total | 16.1 | 32.7 | 14.8 | 4.4 | 22.1 | 9.9 | 100.0 |

* 17 missing observations
** 564 missing observations

TABLE 14

RATES OF EMPLOYMENT AND UNEMPLOYMENT BY CURRICULUM AND HANDICAPPED STATUS

| | Total Handicapped | | Nonhandicapped | |
|---|---|---|---|---|
| | Employment f (%) | Unemployment f (%) | Employment f (%) | Unemployment f (%) |
| No Voc | 5 (55.6) | 4 (44.4) | 453 (71.7) | 179 (28.3) |
| Up to 3 | 3 (42.9) | 4 (57.1) | 1,018 (76.5) | 313 (23.5) |
| 3+ credits | 2 (100.0) | 0 (0.0) | 513 (82.2) | 111 (17.8) |
| S-R Voc | 3 (60.0) | 2 (40.0) | 96 (66.2) | 49 (33.8) |
| S-R Gen | 3 (37.5) | 5 (62.5) | 372 (59.9) | 249 (40.1) |
| S-R CP | - | - | 220 (73.8) | 78 (26.2) |
| Total | 16 (51.6) | 15 (48.4) | 2,672 (73.2) | 979 (26.8) |

Nevertheless, the findings concerning vocational versus nonvocational handicapped persons do support the positive findings of Hasazi and Preskill (1982). They reported that 65 percent of the handicapped vocational graduates were employed as opposed to 47 percent of the nonvocational handicapped persons. If the transcript and self-reported curricula are aggregated into vocational and nonvocational categories, the corresponding employment rates for the NLS Youth handicapped sample are 71.4 percent, based on seven cases, and 45.8 percent based on twenty-four cases. Thus, vocationally-educated handicapped individuals appear to have more positive labor market experiences in terms of employment than do their nonvocational or nonhandicapped peers. Again, the small sample size for the handicapped cohort necessitates that this conclusion be viewed cautiously.

## Earnings

Previous research has documented the earnings disadvantage that is experienced by handicapped people. Bowe (1980) reported that 80 percent of the handicapped population earned less than $7,000 per year. Levitan and Taggart (1976) reported that disabled males earned 20 percent less than nondisabled males. In addition, lower rates of advancement and lower salary increases were found for hearing-impaired persons as compared to others (Guilfoyle et al. 1973; Reich and Reich 1974).

Overall, this earnings disadvantage for handicapped individuals was evident in the present study's findings in both hourly and weekly wages (table 15). The average hourly wage for handicapped persons (n = 29) was $2.89 as compared to $3.56 for nonhandicapped persons. Handicapped individuals with more than three vocational credits or who self-reported a vocational curriculum did not fare better than their nonvocational peers. However, the average hourly wage for the handicapped vocational group is depressed by the $1.75 wage reported by two of the eight individuals in that group. With the small sample size of the handicapped vocational group, any extreme values have a dramatic effect on descriptive statistics, such as the mean.

In the nonhandicapped sample, transcript-identified vocational students reported a higher hourly wage than self-reported general curriculum students. The nonhandicapped, transcript-identified vocational cohort earned less than their peers with zero to three vocational credits. Thus, there is conflicting evidence concerning the effect of vocational education on earnings for the nonhandicapped sample.

No firm conclusions can be derived from the data in this study concerning the effect of vocational education on the earnings of handicapped persons. The small sample size prevents

TABLE 15

HOURLY AND WEEKLY EARNINGS BY CURRICULUM
AND HANDICAPPED STATUS

| | Hourly Earnings | | Weekly Earnings | |
|---|---|---|---|---|
| | Total Handicapped X (n) | Non-handicapped X (n) | Total Handicapped X (n) | Non-handicapped X (n) |
| No Voc | $2.81 (7) | $3.77 (580) | $68.95 (7) | $107.41 (581) |
| Up to 3 | 3.05 (6) | 3.55 (1,229) | 90.33 (6) | 100.76 (1,227) |
| 3+ credit | 2.42 (4) | 3.45 (598) | 51.02 (4) | 101.14 (595) |
| S-R Voc | 2.68 (4) | 3.73 (123) | 91.30 (4) | 103.89 (123) |
| S-R CP | 3.10 (1) | 3.56 (255) | 93.00 (1) | 84.37 (254) |
| S-R Gen | 3.21 (7) | 3.41 (483) | 88.54 (7) | 83.35 (482) |
| Total | 2.89 (29) | 3.56 (3,268) | 79.54 (29) | 98.28 (3,262) |

meaningful interpretation of and generalization from the data. In addition, previous research on the effects of vocational education has indicated that earnings are influenced by numerous factors other than high school curriculum, such as sex, race, enrollment in school while working, and handicapping condition (Campbell, Orth, and Seitz, 1981; Campbell et al. 1981; Mertens et al. 1980; Mertens and Gardner 1981). These factors cannot meaningfully be taken into account here because of the sample size limitations. Consequently, conclusions concerning the effects of vocational education on the employment earnings of handicapped persons await further research.

## CHAPTER IV

## CONCLUSIONS AND IMPLICATIONS

For handicapped persons, special training can improve their potential to be productive members of the labor force. Vocational education in high school represents one way of providing this training. Very little evidence exists concerning the labor market effects of vocational education for handicapped persons, particularly at the national level. The present study explored the feasibility of using the National Longitudinal Survey of Labor Force Behavior, Youth Cohort Survey (NLS Youth), to examine this issue.

The value of the NLS Youth data base for exploring the effects of vocational education was enhanced by the collection of the respondents' high school transcripts by the National Center for Research in Vocational Education. While the addition of the transcripts permitted a more accurate determination of respondents' curriculum than was possible in the past, two limitations should be noted. First, transcripts were collected only for persons who were seventeen or older in 1979. Plans are underway to collect the remaining transcripts, but at the present time, transcripts are not available for the younger respondents. Second, the value of the transcripts was dependent upon accurate coding, which was based on the schools' course titles.

The NLS Youth respondents' handicapping conditions were verified by means of screening on three criteria and the requesting Individualized Education Programs (IEPs) from the schools of the resulting pool of respondents. The three criteria included: (1) a self-reported limiting health condition (other than pregnancy), (2) four or more credits labeled Educable Mentally Retarded (EMR) on their high school transcripts, or (3) a score of 0 or 1 on the World of Work (WOW) test (a proxy measure of IQ). This screening process yielded a pool of 398 potentially handicapped persons; IEPs were obtained for 54 of these. The schools reported that 19 other individuals were eligible for an IEP, but that none was available. Thus, the verified handicapped sample consisted of 73 respondents.

The small sample size has several implications concerning the use of the NLS Youth Surveys to examine labor market effects of vocational education for handicapped persons. First, a small sample size has obvious limitations related to sampling error and generalizability. In addition, the NLS Youth data base appears to be less than ideal for studying the labor market effects of vocational education for handicapped persons. The survey questions are inadequate to determine precisely the

handicapped status of individuals in the sample. The proxies that were used (i.e. health condition, EMR credits, and WOW score) were differentially effective in the identification of handicapped persons. The health condition criteria was the least effective, possibly because of the wide diversity of health conditions that was included, or because of a possible reporting bias on the part of respondents. This points out the difficulty of using existing national data bases to do this type of research, and the need for validating information concerning handicapping conditions in such data bases. A need exists to develop a new data base or to add questions to future NLS Youth surveys that will permit an accurate identification of handicapped individuals. Consideration of this strategy must include the need to obtain information in a nondiscriminatory fashion, as specified in P.L. 94-142.

The unavailability of IEPs for many of the possibly handicapped persons has implications concerning the implementation of the IEP requirement as specified in the P.L. 94-142 legislation. Of all those in the pool of possibly handicapped persons, individuals who reported that a health condition limited the amount or type of work they could do were least likely to have an IEP. This suggests that, while the individuals viewed themselves as limited in some way, the schools did not view them as handicapped. The incidence of individuals who were described as "eligible for an IEP," but for whom no IEP exists, also raises a question concerning the implementation of the P.L. 94-142 legislation. Are IEPs developed for all handicapped students who should have them?

While the quality of the IEPs was fairly good, several issues are of interest concerning the information contained in the IEPs. The IEPs were written to be useful in the school in which they were prepared; they were not written for the purpose of providing data in a national study. Consequently, the subsequent comments concerning the IEPs are made while acknowledging that the IEP's primary purpose was served at the local level. Missing information on several of the IEPs limited their usefulness for the present study. Often, the handicapping condition was not specified and the positions of the individuals responsible for the IEP development were not listed. Standardization of the IEP format across the nation could insure that all relevant data were included; however, this would infringe on the autonomy of the local school districts. Research at the local level could examine in more detail such topics as vocational goals and objectives, assessment information, instructional and media interventions, regular class placement, and involvement of vocational personnel in IEP development.

Vocational education was mentioned in over 80 percent of the IEPs; however, much of the discussion concerned prevocational activities, work experience, or vocational counseling.

Based on high school transcripts supplemented by self-report of curriculum, only 18.6 percent of the handicapped sample were classified as vocational students.

Several hypotheses could explain these results. First, curriculum classification is influenced by the number of years completed in high school, and the number of years of transcript data available for each respondent varied. Respondents in the early years of high school have not yet had an opportunity to take sufficient courses in vocational education to be so classified, and may not have had an opportunity to establish identities as vocational students. Second, many handicapped individuals need special training in life skills such as cooking or sewing. Vocational education could serve to fulfill this function for some individuals, rather than the purpose of occupational preparation. Handicapped students may perceive their vocational education program as more incidental to, rather than as defining, their high school curriculum.

Some evidence suggests that handicapped students are differentially assigned to vocational programs based on their handicapping condition. In the present study, the EMR students were usually enrolled in either home economics or trade and industry courses, and LD students were usually enrolled in trade and industry courses. Orthopedically handicapped students tended to be enrolled in business programs.

The National Institute of Education (1981) reported that academically disadvantaged students were subdivided into those who were only slightly below national norms on standardized tests, and those who are considerably below the norms and likely also to have exhibited behavioral problems or to be inclined to drop out of school. The latter group tended to be placed in separate programs if they resided in relatively large communities that already had such programs, and in the general curriculum track in communities that had no separate, alternative vocational programs. Students with minimal physical or mental handicaps tended to be found in self-contained programs within comprehensive high schools, while more severely disabled students were generally placed in special programs in separate facilities. The handicapped students most likely to be mainstreamed were those with physical, sensory, or speech disabilities that did not prevent them from participating fully in regular, unmodified classrooms.

These systematic enrollment patterns suggest a need to examine the match between the handicapping condition and the assignment to a curriculum, vocational program area, or segregated classroom. Further research could determine if handicapped individuals are assigned to a program area based on a stereotypical notion of what they can do, or on an assessment of each individual's interests and abilities. This type of

information is not available in the NLS Youth data base, therefore, an alternative approach would be needed to examine this problem. The Vocational Education Data System (VEDS) reports information at the national level about the number of handicapped individuals enrolled in each vocational program area. However, VEDS does not report this information by type of handicapping condition.

The implementation date of P.L. 94-142 combined with the survey date for the NLS Youth resulted in a very limited sample from which to infer the labor market effects of vocational education for handicapped youth. P.L. 94-142 required that IEPs be developed by September 1978, and the most recent survey date available for the NLS Youth Surveys was between January and June of 1980. Consequently, opportunities for labor force participation were limited for the sample of respondents who were eligible to have IEPs. The small sample size available for this analysis prevents generalization of the findings. In addition, lack of data concerning training-related placement and underemployment prevented any analyses of these outcomes.

The evidence that is available indicates that handicapped vocational graduates had a higher rate of labor force participation, a higher employment rate, and a lower unemployment rate than their handicapped nonvocational peers. Insufficient data and a wide variability of responses prevent any conclusion concerning the effects of vocational education on the earnings of handicapped people. In addition, the small sample size prevented use of such statistical techniques as regression analysis to control the many extraneous variables that influence a person's earnings.

## Implications

The federal government has provided leadership in the provision of vocational education for handicapped persons through P.L. 94-142 and P.L. 94-482. The implications of this study go beyond the labor market effects of vocational education for handicapped persons. They touch on changes that are needed in current legislation and areas in need of further research that can lead to improvements in vocational education for handicapped persons.

Two aspects of P.L. 94-482 have been the subject of controversy--the excess cost and the matching regulations. The excess cost refers to that part of the expense of educating a handicapped student that "exceeds" the cost of educating a nonhandicapped student; the matching requirement applies only to this excess cost. States are required to match dollar for dollar federal funds that are used to educate handicapped students in

mainstreamed classes, yet the full cost of educating them in segregated classrooms can be paid with federal funds.

Brustein (1981) contends that the combination of matching and excess cost requirements have "undermined an incentive to mainstream the special needs students, and instead has resulted in both the maintenance of separate classes and programs, and the failure of states to expend all their national priority funds on the intended beneficiaries" (p.9).

Beuke (1981) disagreed with this analysis of the situation. He reported, "The handicapped and disadvantaged set-asides and the sub-part 4 funds are clearly meeting the Congressional intent of targeting VEA funds to those populations and should be retained. Several state administrators reported that without the mandated set-asides they would probably continue to serve handicapped and disadvantaged students, but not at the high level that the legislation requires" (p.12).*

The Congressionally mandated study of vocational education reached a similar conclusion (National Institute of Education 1981). The report states, "In the final analysis, however, neither the interpretation of matching and excess costs requirements of the special needs set-asides nor the problems of implementing them can be taken as evidence that the instruments, per se, are inappropriate or unworkable for attaining the ends they are designed to promote "(p.VIII-40). Beuke et al. (1980), Long and Silverstein (1981) and Ruff (1981) reported that state directors of vocational education and other administrators admitted that, without the set-aside provisions, most states would not be spending even the current relatively modest level of VEA funds on special needs populations.

Beuke et al. (1980) and the National Institute of Education study (1981) both recommended retention of the excess costs and matching requirements. However, they suggested that the excess cost requirement be applied to separate programs also. Beuke et al. also recommended that technical assistance be provided to states to help them deal with these two requirements.

In August 1982, the U.S. Department of Education proposed changes in the rules governing P.L. 94-142 ("P.L. 94-142 Rules" 1982). The proposed changes are designed to reduce the

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*The handicapped set-aside stipulates that a minimum of 10 percent of a state's allotment under Section 102 (a) must be used "to pay for up to 50 percent of the costs of programs, services and activities under Subpart 2 and of program improvement and supportive services under Subpart 3 for handicapped persons" [Sec. 110(a) 20 USC 2310(a)]. Subpart 4 authorizes full federal funding for special programs for the disadvantaged (Sec. 140).

administrative burden for local school personnel. Advocates for disabled students are concerned about placing the full responsibility of educating handicapped students back in the hands of state and local officials. Robrahn, executive director of the American Coalition of Citizens with Disabilities, commented, "To leave the quality and extent of special education up to the discretion of the state and local school board. . .will certainly mean the most severely handicapped children would undoubtedly be forced out of the public school system. . .and many will sit in classrooms without adequate related services" (p.4). These proposed changes raise the issue of the federal leadership role for the provision of education for handicapped students.

Other problems and recommendations for improving the relationship between vocational and special education have been discussed in the literature. Halloran and Razeghi (1981) cited the following problem areas:

- Vocational educators resist inclusion of handicapped students in their programs.
- Handicapped individuals are underrepresented and segregated in vocational programs.
- There is a lack of coordination with other agencies that have the potential to serve handicapped persons.
- There is confusion regarding the identification and definition of handicapped students by vocational personnel.
- The distribution of federal vocational education funds does not assure that federal funds will affect postsecondary programs for handicapped people.

Based on a survey of vocational educators in fifteen area vocational centers in Vermont, Albright and Preskill (1982) supported the need for inservice training for vocational educators in special education. For example, 74 percent of the teachers said that they currently had or have had a handicapped student in their classes. However, 70 percent of this sample reported that they had had no formal coursework or workshop training in educating students with special needs. The authors concluded that inservice training was needed to adapt course objectives, identify appropriate instructional material and activities, assess the performance level of students, modify materials, and individualize instruction.

A need exists for more materials to assist vocational educators in providing services for handicapped students (Vetter et al. 1982). Information is sparse about such topics as adaptations, modifications, support team approaches, and least restrictive environments. This lack of information hampers inservice and preservice training of school personnel. In addition, materials focusing on employers and labor unions are scarce. Such groups can serve as advocates for handicapped people to improve their employment possibilities.

Another area in need of improvement is the involvement of vocational educators in the IEP development process. Albright and Preskill (1982) found that only 12 percent of the vocational educators in their sample reported participation in the IEP development, although 61 percent reported an informal involvement. Beuke et al. (1980) recommended that current policy be changed to clarify involvement of vocational educators in the special education needs assessment and planning process to insure involvement of vocational educators in IEP development for special needs vocational education students.

A final problem area concerns the types of modifications that have been made in vocational education classrooms to adapt to the needs of handicapped students. In a study of over 300 school districts in Texas, Fair (1982) reported that modifications were usually made in testing or grading. He stated, "Equipment modifications and the use of additional materials were not indicated as approaches used to assist special education students "(p.3). Yet, McGough (1980) listed seventeen modifications that could improve the ability of handicapped students to function in vocational programs. These ranged from the installation of colored lights next to switches to indicate when machines are running, to provision of ample space for wheelchairs. Many of the modifications could be made with very little expenditure of funds. This represents another potential area for inservice training.

Vocational educators have a unique opportunity to impart occupational and life skills to handicapped people. Changes are needed in policies and practices to improve preparation for the labor market of individuals who have been underserved to date. This improved preparation can yield a contributing rather than an institutionalized member of society, and thus represents an investment in the future of handicapped individuals, the nation, and the nation's economy.

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# APPENDIX

## ORIENTATION PLAN TO USE THE NLS YOUTH DATA BASE TO EXAMINE THE LABOR MARKET EXPERIENCES OF HANDICAPPED YOUTH

In 1982 a study was conducted to examine the effects of secondary vocational education on the labor market experiences of handicapped persons (Mertens and Seitz 1982). The data base selected for analysis was the National Longitudinal Survey of Labor Force Behavior, New Youth Cohort (NLS Youth). With funding from the U.S. Office of Special Education and Rehabilitative Services, the National Center for Research in Vocational Education sought to supplement the NLS Youth data with information from the Individual Education Programs (IEPs) for handicapped persons in the sample. In addition to the collection and analysis of the IEPs, an orientation plan for using the NLS Youth and IEP data was developed. The plan provides a mechanism that allows the research community to use these data to conduct employment research for handicapped persons.

The orientation plan presented here provides potential users of the NLS Youth with the following information:

- A description of the data base, the sampling characteristics, the types of variables available, and the supplementary data sources (e.g., IEP and transcript data)
- Technical information and resources needed to access the data
- Documentation of the IEP data and a discussion of the limitations of the data for verification of handicapped persons in the sample

It is hoped that this information will aid researchers in their consideration of the utility of the NLS Youth surveys for their particular research problem.

## Description of the NLS Youth Data

The National Longitudinal Survey of Labor Force Behavior, New Youth Cohort (NLS Youth) was conducted by the Center for Human Resource Research (CHRR) with support from the U.S. Departments of Labor and Defense. The NLS Youth surveys are an extension of the earlier NLS surveys that were initiated in the mid-1960s. CHRR has responsibility for design of the questionnaire, analysis of the data, preparation of reports, and public distribution of the data. The National Opinion Research Center (NORC) has responsibility for designing the sample and conducting the field work under a subcontract with CHRR. For researchers who are considering using the NLS Youth data, a review of the NLS Handbook is recommended. This document contains a brief history of the NLS cohorts, descriptive tables that list the

major variables available in each survey year, coding and computer information, and an explanation of the sampling and weighting procedures.

The following discussion is intended to provide the reader with a general description of the NLS Youth data base. An overview of the sampling characteristics is presented and the three data sources are covered--interview, transcript, and IEP data.

## Sampling Characteristics

The NLS Youth is a national probability sample of 12,686 persons who were between the ages of fourteen and twenty-one when originally selected in the fall of 1978. The sample was drawn from the youth population in three stages: (1) a cross-sectional sample; (2) a supplemental sample of blacks, Hispanics, and economically disadvantaged whites; and (3) a sample of youth serving in the military. The cross-sectional and supplemental samples were stratified by sex and relatively equal proportions of men and women were included. The military sample was composed of approximately one-third female respondents and two-thirds male respondents. Weighting procedures were developed to compensate for the oversampling of these groups. Individuals residing in institutions on a permanent basis were excluded from the sample.

## Interview Data

NLS respondents were first interviewed early in 1979. The data collection in the base year included background information about respondents' families, schooling, work history, and training. In addition, data were gathered concerning current labor market and educational activities, work attitudes, educational and occupational aspirations, and several sociopsychological indicators (e.g., knowledge of the world of work, attitude toward women working). Persons who are interested in using the NLS Youth data for research in the area of vocational education should note that the information collected in the base year included self-report of high school curriculum, vocational program area, training relatedness of postschool employment, and postsecondary training experience (e.g., type of training, occupation for which trained for).

The first follow-up interview with NLS respondents was conducted in 1980. The rate of attrition was 4.3 percent, yielding a sample size of 12,141. Respondents were asked about their labor market, educational and training activities, and--new for the 1980 survey year--their experiences concerning school discipline, delinquency and drugs, and police contacts.

Both the 1979 and 1980 interview data are currently available to the public. The 1981 and 1982 follow-up interviews have also been completed and it is anticipated that these data will be released to the public in August of 1982 and 1983, respectively. Key questions relating to labor market and educational activities and demographic changes (e.g. marital status, migration) were replicated in 1981 and 1982 to provide continuity across the survey years. Annual interviews with the NLS Youth respondents are presently scheduled through 1984.

Transcript Data

In an effort to supplement the interview data gathered, the National Center for Research in Vocational Education sought to collect the high school transcripts of the NLS Youth respondents. At the time of the 1979 interview, participants in the survey were asked to sign a release permitting the disclosure of these records. In 1980, with funding from the U.S. Department of Education, Office of Vocational and Adult Education and under a collaborative agreement with CHRR, the National Center obtained the transcripts of persons who were seventeen years and older at the time of the first interview (Round I Transcript Data). This target sample was selected because it was anticipated that this age group should have either completed or left high school by the fall of 1980. The National Opinion Research Center (NORC) was responsible for securing the transcripts from the schools. With several follow-up efforts, a 77 percent response rate was achieved.

Information obtained from the individual transcripts included the number of days absent while the students were in grades nine through twelve, academic rank in class, and scores for various aptitude tests. The course information secured from the transcripts consisted of a specific course code, the grade level at which the course was taken, the letter grade received, and the credit received for the course. The first round of transcript data was scheduled for release to the public in August of 1982. In addition, transcripts have also been collected for younger members of the NLS Youth cohort who were ages fifteen and sixteen at the time of the first interview (Round II Transcript Data). Tentatively, these data will be available to public users in 1983.

IEP Data

As was noted in the introduction, an attempt was made to collect the Individual Education Programs (IEPs) for persons in the NLS Youth sample who were thought to be handicapped. The collection effort was sponsored by the U.S. Office of Special Education and Rehabilitative Services, and the National Center for Research in Vocational Education contracted with NORC to contact the schools and secure the IEPs.

Several criteria were used to select persons for the IEP sample. First, because the implementation date for the legislation that mandated the development of IEPs (P.L. 94-142) was September 1978, the sample was restricted to those respondents who reported leaving high school after 1978 or were still enrolled at the 1979 or 1980 interviews. Second, cases had to be excluded if the school identification number was missing. From this restricted sample, potential handicapped individuals were identified by one of three criteria:

1. If respondents had indicated that they were prevented from working for pay or were limited in the type of work they could do because of a health condition. Persons who reported an accident as a limiting health condition were included if the accident occurred more than six months prior to the 1979 interview. Pregnancy was the only health condition excluded.

2. If respondents' transcripts showed that they had been enrolled in more than four classes for the educable mentally retarded (EMR). The criteria of four classes were established because other types of special education classes (e.g., Learning Resource Center) had been identified with the same code in the transcript data.

3. If respondents had scored at the second percentile or lower on the World of Work (WOW) test. The WOW test was used as a proxy for ability, and respondents who scored a 0 or 1 on the nine-item test were selected. (Persons with a score of 1 were estimated to be at the third percentile in a normal distribution.)

The criteria yielded a sample size of 398. The respondents' schools were contacted and fifty-five IEPs were returned. Information coded from the IEPs included the handicapping condition, the type of vocational program the student participated in, whether annual goals and short-term objectives were specified, and whether the student was mainstreamed. Frequency distributions for the IEP variables are presented in tables A1-A16. For a more complete discussion of the IEP collection effort and an initial analysis of the data, the reader is referred to Mertens and Seitz (1982).

TABLE A1

CRITERIA USED TO SELECT CASES FOR

IEP SAMPLE

SELECTK SELECTION CRITERIA FOR SAMPLE

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| HEALTH ONLY | 1. | 235 | 1.9 | 59.0 | 59.0 |
| EMR ONLY | 2. | 30 | 0.2 | 7.5 | 66.6 |
| WOW ONLY | 3. | 123 | 1.0 | 30.9 | 97.5 |
| 2+CRITERIA | 4. | 10 | 0.1 | 2.5 | 100.0 |
| | -4. | 12288 | 96.9 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 398 MISSING CASES 12288

TABLE A2

FINAL DISPOSITION OF IEP COLLECTION EFFORT

I2 DISPOSITION CODE-IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| IEP REC'D: 4 YRS | 60. | 3 | 0.0 | 0.8 | 0.8 |
| IEP REC'D: < 4 YRS | 61. | 21 | 0.2 | 5.3 | 6.0 |
| IEP REC'D: DROPOUT | 62. | 10 | 0.1 | 2.5 | 8.5 |
| IEP REC'D: ENROLLED | 63. | 18 | 0.1 | 4.5 | 13.1 |
| IEP REC'D: TRANSFER | 64. | 3 | 0.0 | 0.8 | 13.8 |
| TRANSFER: NOT TRACED | 70. | 2 | 0.0 | 0.5 | 14.3 |
| IEP DESTROYED | 72. | 6 | 0.0 | 1.5 | 15.8 |
| SCHOOL REFUSED | 81. | 3 | 0.0 | 0.8 | 16.6 |
| UNABLE TO TRACE | 83. | 25 | 0.2 | 6.3 | 22.9 |
| NO IEP: REC'D TRANS | 98. | 87 | 0.7 | 21.9 | 44.7 |
| NO IEP: R LEFT 1979 | 901. | 10 | 0.1 | 2.5 | 47.2 |
| IEP NOT AVAILABLE | 902. | 65 | 0.5 | 16.3 | 63.6 |
| NO IEP: R GRAD,ETC | 903. | 96 | 0.8 | 24.1 | 87.7 |
| SCHOOL SENT TRANS | 993. | 49 | 0.4 | 12.3 | 100.0 |
| | -4. | 12288 | 96.9 | MISSING | 100.0 |
| | TOTAL | 12666 | 100.0 | 100.0 | |

VALID CASES 398 MISSING CASES 12288

KEY TO TABLE A2
DISPOSITION CODE - IEP

| CATEGORY LABEL | CODE | DESCRIPTION |
|---|---|---|
| IEP REC'D: 4 YRS | (60) | An IEP was supplied by the school and it covered four years. The respondent (R) had graduated or received the General Equivalency Diploma (GED). |
| IEP REC'D: < 4 YRS | (61) | An IEP was supplied by the school but covered less than four years; R had graduated or received the GED. |
| IEP REC'D: DROPOUT | (62) | A partial IEP was supplied by the school; R had dropped out of school before graduation. |
| IEP REC'D: ENROLLED | (63) | A partial IEP was supplied by the school; R was still enrolled in the school at the time of data collection. |
| IEP REC'D: TRANSFER | (64) | A partial IEP was supplied by the school; R had transferred from the school |
| IEP REC'D: NOT TRACED | (70) | R had transferred from the school and could not be traced. |
| IEP DESTROYED | (72) | The school reported that the IEP had been destroyed; R was considered potentially eligible for an IEP. |

TABLE A2
(Continued)

| CATEGORY | CODE | DESCRIPTION |
|---|---|---|
| SCHOOL REFUSED | (81) | The school refused to supply the requested information (i.e., an IEP or indication of the student's handicap). R was considered to be potenially eligible for an IEP. |
| UNABLE TO TRACE | (83) | The school and NORC were unable to trace the student. |
| NO IEP: REC'D TRANS | (98) | The school reported no IEP was available for R but did supply a copy of the transcript (as requested). |
| NO IEP: R LEFT 1979 | (901) | The school reported no IEP was available for R and s/he had left the school in 1979 or earlier. R was considered potentially eligible for an IEP. |
| IEP NOT AVAILABLE | (902) | The school reported no IEP was available for R and indicated R was not eligi- for an IEP. |
| NO IEP: R GRAD, ETC | (903) | The school confirmed that an IEP was not available and that R had graduated, was gifted, or was otherwise. |
| SCHOOL SENT TRANS | (993) | The school reported no IEP was available but supplied a copy of the transcript. |

TABLE A3

FIRST HANDICAPPING CONDITION

DERIVED FROM IEP

I3 1ST HANDICAPPING CONDITION-IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| MENTAL | 1. | 30 | 0.2 | 54.5 | 54.5 |
| ORTHOPEDIC | 6. | 3 | 0.0 | 5.5 | 60.0 |
| LEARNING | 7. | 9 | 0.1 | 16.4 | 76.4 |
| OTHER HANDICAP | 8. | 2 | 0.0 | 3.6 | 80.0 |
| MIX OF CONDITIONS | 9. | 4 | 0.0 | 7.3 | 87.3 |
| NOT AVAILABLE | 10. | 6 | 0.0 | 10.9 | 98.2 |
| GIFTED | 11. | 1 | 0.0 | 1.8 | 100.0 |
| | -4. | 12631 | 99.6 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 55 MISSING CASES 12631

TABLE A4

SECOND HANDICAPPING CONDITION DERIVED FROM THE IEP

I4 2ND HANDICAPPING CONDITION-IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| MENTAL | 1. | 2 | 0.0 | 50.0 | 50.0 |
| SPEECH | 5. | 1 | 0.0 | 25.0 | 75.0 |
| ORTHOPEDIC | 6. | 1 | 0.0 | 25.0 | 100.0 |
| | -4. | 12682 | 100.0 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 4 MISSING CASES 12682

TABLE A5

THIRD HANDICAPPING CONDITION DERIVED FROM THE IEP

I5 3RD HANDICAPPING CONDITION-IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| HEARING | 3. | 1 | 0.0 | 25.0 | 25.0 |
| VISUAL | 4. | 1 | 0.0 | 25.0 | 50.0 |
| SPEECH | 5. | 1 | 0.0 | 25.0 | 75.0 |
| ORTHOPEDIC | 6. | 1 | 0.0 | 25.0 | 100.0 |
| | -4. | 12682 | 100.0 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 4 MISSING CASES 12682

TABLE A6

FOURTH HANDICAPPING CONDITION DERIVED FROM THE IEP

I6 4TH HANDICAPPING CONDITION-IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| LEARNING | 7. | 1 | 0.0 | 100.0 | 100.0 |
| | -4. | 12685 | 100.0 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 1 MISSING CASES 12685

TABLE A7

FIFTH HANDICAPPING CONDITION DERIVED FROM THE IEP

I7 5TH HANDICAPPING CONDITION-IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| OTHER HANDICAP | 8. | 1 | 0.0 | 100.0 | 100.0 |
| | -4. | 12685 | 100.0 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 1 MISSING CASES 12685

TABLE A8

TYPE OF VOCATIONAL PLACEMENT SHOWN ON THE IEP

I8 VOC PLACEMENT-IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| NONE | 0. | 12 | 0.1 | 21.8 | 21.8 |
| PREVOCATIONAL | 1. | 12 | 0.1 | 21.8 | 43.6 |
| HOME EC | 2. | 7 | 0.1 | 12.7 | 56.4 |
| TRADE & INDUSTRY | 3. | 12 | 0.1 | 21.8 | 78.2 |
| BUSINESS & OFFICE | 4. | 3 | 0.0 | 5.5 | 83.6 |
| AGRICULTURE | 7. | 1 | 0.0 | 1.8 | 85.5 |
| WORK EXPERIENCE | 8. | 5 | 0.0 | 9.1 | 94.5 |
| VOC COUNSELING | 9. | 1 | 0.0 | 1.8 | 96.4 |
| OTHER | 10. | 2 | 0.0 | 3.6 | 100.0 |
| | -4. | 12631 | 99.6 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 55 MISSING CASES 12631

TABLE A9

TYPE OF VOCATIONAL PERSONNEL INVOLVED IN STUDENT'S IEP

I9 VOC PERSONNEL-IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| NONE | 0. | 31 | 0.2 | 57.4 | 57.4 |
| VOC PERSONNEL | 1. | 8 | 0.1 | 14.8 | 72.2 |
| OTHER IN VOC ROLE | 2. | 15 | 0.1 | 27.8 | 100.0 |
| | -4. | 12632 | 99.6 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 54 MISSING CASES 12632

TABLE A10

ARE INDICATORS OF THE STUDENT'S PRESENT LEVEL OF EDUCATIONAL PERFORMANCE SHOWN ON THE IEP?

:10 PRESENT LEVEL ED PERFORMANCE-IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| NONE | 0. | 6 | 0.0 | 10.9 | 10.9 |
| YES,W-O-SCORES | 1. | 24 | 0.2 | 43.6 | 54.5 |
| YES,W-SCORES | 2. | 25 | 0.2 | 45.5 | 100.0 |
| | -4. | 12631 | 99.6 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 55 MISSING CASES 12631

Note: Yes, W-O-Scores means the present level was indicated, but standardized scores were not presented. Yes, W-scores means that standardized scores were presented.

TABLE A11

ARE ANNUAL GOALS SPECIFIED ON THE IEP?

I11 ANNUAL GOALS-IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| NO | 0. | 3 | 0.0 | 5.5 | 5.5 |
| YES | 1. | 20 | 0.2 | 36.4 | 41.8 |
| YES, INCLUDING VOC | 2. | 32 | 0.3 | 58.2 | 100.0 |
| | -4. | 12631 | 99.6 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 55 MISSING CASES 12631

TABLE A12

ARE SHORT-TERM OBJECTIVES SPECIFIED ON THE IEP?

I12 SHORT TERM OBJECTIVES--IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| NO | 0. | 5 | 0.0 | 9.1 | 9.1 |
| YES | 1. | 26 | 0.2 | 47.3 | 56.4 |
| YES, INCLUDING VOC | 2. | 24 | 0.2 | 43.6 | 100.0 |
| | -4. | 12631 | 99.6 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 55 MISSING CASES 12631

TABLE A13

ARE SPECIFIC EDUCATIONAL SERVICES REFERENCED ON THE IEP?

I13 SPECIFIC EC SERVICES-IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| NO | 0. | 6 | 0.0 | 10.9 | 10.9 |
| YES | 1. | 49 | 0.4 | 89.1 | 100.0 |
| | -4. | 12631 | 99.6 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 55 MISSING CASES 12631

TABLE A14

DOES THE IEP SHOW THAT THE STUDENT WAS MAINSTREAMED?

I14 EXTENT REGULAR ED-IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| NO | 0. | 10 | 0.1 | 18.2 | 18.2 |
| YES | 1. | 45 | 0.4 | 81.8 | 100.0 |
| | -4. | 12631 | 99.6 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 55 MISSING CASES 12631



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TABLE A15

ARE THERE DATES PRESENT WHICH SPECIFY THE DURATION OF THE ACTIVITIES OUTLINED IN THE IEP?

I15 DATES & DURATION-IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| NO | 0. | 8 | 0.1 | 14.5 | 14.5 |
| YES | 1. | 47 | 0.4 | 85.5 | 100.0 |
| | -4. | 12631 | 99.6 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 55 MISSING CASES 12631

TABLE A16

ARE EVALUATION CRITERIA AND PROCEDURES SPECIFIED ON THE IEP AND WAS AN EVALUATION SCHEDULED?

116 CRITERIA-PROCEDURE-SCHED EVALUATION-IEP

| CATEGORY LABEL | CODE | ABSOLUTE FREQ | RELATIVE FREQ (PCT) | ADJUSTED FREQ (PCT) | CUM FREQ (PCT) |
|---|---|---|---|---|---|
| NO | 0. | 11 | 0.1 | 20.0 | 20.0 |
| YES | 1. | 44 | 0.3 | 80.0 | 100.0 |
| | -4. | 12631 | 99.6 | MISSING | 100.0 |
| | TOTAL | 12686 | 100.0 | 100.0 | |

VALID CASES 55 MISSING CASES 12631

## How to Access the NLS Youth Data Files

With the addition of the IEP data, the NLS Youth offers the opportunity to investigate the effects of educational strategies for handicapped persons over time. Researchers will be able to track the labor market, educational, and training experiences of these students and make comparisons with nonhandicapped individuals having similar experiences. Table A17 summarizes the availability of the data and the projected release dates to the public.

There are two primary sources for access to the NLS Youth public use data tapes: The Center for Human Resource Research (CHRR) at The Ohio State University, and the Inter-University Consortium for Political and Social Research (ICPSR), Institute for Social Research, at the University of Michigan. The public use tapes and documentation can be purchased from CHRR by anyone. Access to the ICPSR copy of the public use tapes and documentation is generally limited to members of the consortium, which consists primarily of colleges and universities. Access methods to obtain the tapes from both of these sources are presented in table A18.

Center for Human Resource Research. If researchers should elect to purchase the NLS Youth data files, including the transcript and IEP data, they should contact CHRR. The materials received with the purchase of the data files include: (1) a computer data tape; (2) the NLS Handbook which provides general information about all the NLS cohorts, descriptive tables that identify the major variables available, and coding and tape format information; (3) a copy of the interview schedule and the interviewer's reference manual; (4) a copy of the codebook, which contains a description of each variable, its position on the data file, and a frequency distribution; and (5) two indexes of all variables--the Numeric Index, which lists the variables numerically by tape location, and the Key Word in Context (KWIC) index, which is arranged alphabetically by key words.

The purchaser will receive a cumulative record of the data available up to the time of the request. For example, the 1979, 1980, and 1981 interview data and Round I of the transcript data would be purchased as a unit if ordered after August 1982. If the user wanted to update the data files with the next year's data (e.g., 1982 interview data), they would receive all of the data (i.e., 1979 thorough 1982) at the time of the second purchase. Persons interested in adding the IEP data to the NLS Youth files need to request this separately.

In addition to acting as the producer and distributor of the NLS Youth data, CHRR performs a clearinghouse function to answer users' questions about technical problems, suspected problems in the data, or in the documentation.

TABLE A17

AVAILABILITY OF THE NLS YOUTH DATA FILES

| DATA DESCRIPTION | TENTATIVE PUBLIC RELEASE DATE |
|---|---|
| 1979, 1980 Interview Date | Currently Available |
| 1981 Interview Data | August 1982 |
| 1982 Interview Data | August 1983 |
| 1983 Interview Data | August 1984 |
| 1984 Interview Data | August 1985 |
| Round I Transcript Data | August 1982 |
| Round II Transcript Data | August 1983 |
| Individual Education Program (IEP) Data | August 1982 |

TABLE A18

HOW TO ACCESS THE NLS YOUTH DATA FILES

TO PURCHASE THE NLS YOUTH DATA FILES, CONTACT:

Data Users Services (Ellen Mumma)
Center for Human Resource Research
The Ohio State University
5701 North High Street
Worthington, Ohio 43085

Telephone (614) 888-7314

ADDITIONAL CONTACTS:

For general information or requests for publications, contact:

Ellen Mumma
Address: (same as above)

Telephone: (614) 888-7314

For specific questions about the NLS Youth interview data, contact:

Dennis Grey
Address: (same as above)

Telephone: (614) 888-8238

TO ORDER THROUGH THE ICPSR CONTACT:

Member Services
Inter-University Consortium for Political and Social Research
P.O Box 1248
Ann Arbor, Michigan 48106

Telephone: (313) 763-5010

For additional information about ICPSR services or membership, readers are urged to consult the Consortium's publication listed in the Annotated bibliography.

Inter-University Consortium for Political and Social Research. Persons who are affiliated with institutions that are members of the ICPSR may also access the NLS Youth data through this channel. (Individuals at nonmember institutions may also obtain the data through the Consortium for a fee). ICPSR maintains and distributes a variety of data files for approximately 220 institutions, and members are generally not charged for requests for individual data files once the annual fee has been assessed. Requests for data should be made through the official ICPSR representative (e.g., a faculty member) at each member institution or, for nonmembers, to the director of the ICPSR archive. Users are asked to supply a magnetic data tape (except where the institution requires card input) and the ICPSR will return it with the data and a copy of the necessary documentation. It should be noted that access to the ICPSR data files may be temporarily delayed while other researchers complete their analyses and, in the case of large data sets, users may be asked to prioritize their time schedules to permit more efficient distribution of the files. The NLS Youth public use data is distributed from the ICPSR archive in the original form as received from the producer of the data (i.e., CHRR).

The bibliography in this document includes several references that provide technical information about the NLS Youth samples and the availability of the data. Also included are research reports that have used the NLS Youth surveys to examine issues related to vocational education, handicapped youth, and employment status.

## Verification of Handicapped Persons in the NLS Youth Surveys

Three criteria were used to identify potentially handicapped persons in the NLS Youth surveys: a self-reported limiting health condition (excluding pregnancy), four or more credits labeled Educable Mentally Retarded (EMR) on the student's transcript, or a score of 0 or 1 on the World of Work (WOW) test.* The handicapping condition was to be verified by collecting the Individualized Education Programs (IEPs) from the respondents' schools. This discussion focuses on the results of the IEP collection effort and the limitations in the data for validating the handicapping condition of NLS Youth respondents.

## Identification and Validation of Handicapping Status

The screening process yielded a pool of 398 potentially handicapped persons; IEPs were obtained for 55 individuals. The

*Other screens applied to the data to select the sample were based on the implementation date for the IEP legislation (September, 1978) and on having a school identification code.

schools reported that an additional 19 persons were eligible for IEPs, but that none were available. For these persons, the reasons given by the schools for the lack of an IEP were that the IEPs had been destroyed, the students had left the school in 1979 or earlier and no IEPs were developed, or that the schools refused to supply the requested information (see table A2). Follow-up phone calls to the schools were made to verify the possibility of the students being handicapped and thus, these cases were coded coded as "potentially eligible for an IEP." As a result, the verified handicapped sample consisted of 74 respondents, or 0.6 percent of the total NLS Youth sample.

Correspondence between the selection criteria and the handicapping information in the IEP differed among the three proxies. Ten of eleven persons identified by the WOW criteria were coded as either EMR or Learning Disabled (LD) on their IEPs. Similarly, thirteen of sixteen cases that were selected by the EMR criteria were identified as either EMR or LD on their IEPs. Thus, it appears that the EMR and WOW criteria are valid indicators of EMR and LD conditions for this sample.

The match between the IEP information and the health criteria was not evidenced as strongly. In the self-report of limiting health conditions, one person reported a hearing impairment, three reported orthopedic handicaps, and the remaining twenty-four reported other health conditions. Of those who reported orthopedic handicaps, one respondent's condition corresponded to the IEP handicap code. This lack of correspondence could be due to the fact that over 60 percent of the health criteria respondents were categorized as EMR or LD from their IEPs. The results of matching the self-reported health condition with the IEP handicapping code underlines the importance of validating information found in a national data base such as the NLS Youth surveys.

The most prevalent type of handicapping condition found in the IEPs was EMR (54.5 percent), followed by LD (16.4 percent). Three of the respondents who were multiply handicapped also had an EMR or LD classification, bringing the total percentage of EMR or LD cases in the sample to 79 percent. Additional handicapping conditions included orthopedic, speech, visual, and hearing impairments, plus an "other" category. One student was labeled gifted. No handicapping condition was specifically mentioned on the IEP, or one could not be determined for six (10.9 percent) respondents.

Quality of the IEP Data. Several issues are of interest concerning the type and quality of the information contained in the IEPs. Because IEPs are designed to be useful in the schools in which they are prepared, and are not written for the purpose of supplying data outside the institution, the format of the

IEPs and type of the information available varied from site to site. This presented a problem in constructing variables for which one could reasonably expect to obtain data.

Overall, however, the quality of the IEP data was judged to be generally high compared to other studies (Schenck and Levy 1979). Approximately 37 percent of the IEPs were missing at least one piece of information required by the IEP legislation. Specific problem areas were the lack of specification of the handicapping condition, and the position (e.g., teacher, counselor) of the individuals involved in the preparation of the IEPs.

## Conclusions and Implications

First, several comments are in order regarding the criteria used to select the cases for which IEPs were collected. Use of the health criteria required that individuals report that they were limited or prevented in the type of work they could do. Little evidence exists to determine the possible biases associated with this type of survey item, but the IEPs that were collected indicated a tendency to over-report health conditions and under-report EMR or LD. For example, are handicapped individuals more or less likely to report that their capacity to work for pay is limited by a health condition? It should also be noted that the type of health problems reported were quite diverse.

Regarding the EMR criteria, because the collection of transcripts was limited to older members of the cohort, the question of sampling bias must be raised. In addition, most persons for whom transcripts were available had left high school before IEPs were required. As a proxy for intelligence, the WOW test is somewhat limited. WOW scores have been shown to vary with educational attainment, family income, and employment status (Borus et al. 1980), but the reliability of the scores as an occupational information test may be low (Passmore et al. in press). A final note concerns the sampling design of the NLS Youth surveys; persons who were permanently living in an institution were excluded from the sample.

The problems associated with identifying the handicapped (or any special group) in a national data base are numerous. The results of the IEP collection effort, specifically the small number of IEPs obtained and the differential effectiveness of the selection criteria for verifying the handicapping condition, underscore this issue. These problems, however, do not negate the need for validating information concerning handicapping conditions in such data bases.

Several implications that concern the IEP sample size can be derived from a review of the data. The limited number of cases available obviously introduces questions about sampling error and generalizability. The small sample size also inhibits the type of statistical techniques that can be applied to the data. Rigorous techniques that would control for various intervening variables are not feasible. The type of analyses that can be performed is also limited due to the composition (e.g., age, educational status) of the IEP sample.

For researchers who are interested in examining the labor market and employment experiences of handicapped youth, the NLS Youth surveys, supplemented with the transcript and IEP data, offers a unique opportunity. The latter data sources supply objective and reliable information about the content of students' high school experiences. The interview data provide comprehensive information about youth's labor market activities plus background characteristics. Potential users of the NLS Youth surveys for handicapped research are cautioned, however, to keep the sample size, type of information available, and composition of the IEP sample in mind when drafting their research design. For example, as of the 1980 interview, the majority of persons for whom IEP data are available have only been out of high school for a short time. Because the sample consists of new entrants to the labor market, the completeness of any employment-related research is limited. Examination of other issues that are particularly important to the handicapped population, such as training-related job placement, are only partially feasible.

In conclusion, the attempt to verify the handicapping status of persons in the NLS Youth surveys serves to illustrate the difficulty of doing research on specialized segments of a population with existing data bases. The results of the IEP collection effort also underscore the importance of obtaining validating information. The NLS Youth do, however, provide a national data base for researchers to examine the labor market and educational activies of handicapped youth in a limited way. Because the data are longitudinal, the potential exists for researchers to trace the school-to-work transition that is especially critical for this segment of the youth population. Also, in subsequent years one will be able to better track the employment experiences of these persons in the early adult years. Persons who are involved in research for the handicapped are encouraged to develop new and creative methods to use the NLS Youth surveys and the IEP data to their maximum potential.

## REFERENCES


Borus, Michael E.; Crowley, Joan E.; Rumberger, Russell; Santos, Richard; and Shapiro, David. Youth Knowledge Development Report 2.7 Findings of the National Longitudinal Survey of Young Americans, 1979. Washington, DC: Government Printing Office, 1980.

Mertens, Donna M.; and Seitz, Patricia. Labor Market Experiences of Handicapped Youth. Columbus, OH: National Center for Research in Vocational Education, Ohio State University, 1982.

Passmore, David Lynn; Ay, Unal; and Geer, Edward. "Reliability of the Knowledge of the World of Work Test in the New Youth Cohort of the National Longitudinal Surveys of Labor Market Experience." Journal of Studies in Technical Careers, in press.

Schenck, S. H., and Levy, W. K. "IEPs: The State of the Art 1978." Paper presented at the annual meeting of the American Educational Research Association, San Francisco, April 1979.

## ANNOTATED BIBLIOGRAPHY

Borus, Michael E.; Crowley, Joan E.; Rumberger, Russell; Santos, Richard; and Shapiro, David. Youth Knowledge Development Report 2.7 Findings of the National Longitudinal Survey of Young Americans, 1979. Washington, DC: Government Printing Office, 1980.

This volume is an analysis of the base-year interview data and covers such topics as the employment status of youth, health status of youth, vocational education students, and others. In addition, a detailed discussion of the sampling and weighting procedures is included.

Campbell, Paul B.; Gardner, John A.; and Seitz, Patricia. High School Graduates: Which Doors Are Open? Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

This report is a synthesis of three research efforts that used the NLS Youth transcript and interview data. Patterns of vocational participation were developed from the transcript records to examine the effects of vocational education on labor market and postsecondary educational experiences.

Center for Human Resource Research. The National Longitudinal Survey Handbook. Columbus: College of Administrative, Science, The Ohio State University, 1981.

The handbook is an excellent resource for researchers who are considering using the NLS data. It contains a brief history of the NLS cohorts, descriptive tables that list the major variables available in each survey year, coding and computer tape information, and a bibliography of research reports developed from the NLS data. For the Youth cohort in particular, a discussion of the sampling and weighting procedures is presented. The handbook can be ordered from the NLS Public User's Office, Center for Human Resource Research, 5701 N. High Street, Worthington, Ohio 43085.

Center for Human Resource Research. NLS Newsletter. Columbus: College of Administrative Science, The Ohio State University.

The newsletter is a vehicle for informing NLS data users of the availability of data tapes, corrections and updates to the data, research projects using the NLS data (both completed and in progress), and other relevant information. The newsletter is distributed quarterly to all purchasers of the NLS data and other interested individuals.

Institute for Social Research, Center for Political Studies. Inter-University Consortium for Political and Social Research Guide to Resources and Services 1980-81. Ann Arbor MI: no date.

This publication contains general information about the purpose and activities of the consortium, membership guidelines, additional services offered (e.g., training programs, computing assistance), and a complete list and description of the data bases maintained in the ICPSR archive.

Mertens, Donna M., and Seitz, Patricia. Labor Market Experiences of Handicapped Youth. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

This report describes the collection of the Individualized Education Plans (IEPs) for NLS Youth respondents and also presents an initial analysis of the IEP data. The focus of the report is on the employment and wage effects of secondary vocational education for the handicapped.

Passmore, David Lynn; Ay, Unal; Rockel, Sheryl; Wade, Barbara; and Wise, James. Health and Youth Employment. University Park, PA: Pennsylvania State University (mimeo), 1982.

The authors used the NLS Youth to examine the employment experiences of young people who reported that their health limited or prevented the type of work that they could do. Indices of labor force status, hours worked per week, job satisfaction, occupational prestige, and hourly rate of pay are examined.